

Brainstorm:

- 1) Definition of "force"
- 2) Examples of forces

- 1) - Action exerted on object
 - external act on object
 - ~~- thing that gives jedis their~~
 - magnitude of energy ~~power~~ exerted on object

Definition: Action on object
that causes a change

- 2) Pull } Applied
Push }
Gravity
Friction
Electromagnetic
 - ↳ Electric
 - ↳ magnetic
Weak nuclear
Strong nuclear

Spring
Normal

Ways to Apply Force:

1. Contact

Applied, Spring, Friction,
Normal

2. Field

Electromagnetic
Gravity

Strong and Weak nuclear

Newton's Laws:

1. Obj. in motion/at rest

Stays in motion/at rest

unless acted upon by outside
force

(law of inertia)

$$2. \sum \vec{F} = m\vec{a}$$

net force

Σ - sum of

- can be general direction, but usually
take x- and y-directions independently

3. Forces come in pairs;

equal in magnitude, opposite
in direction

Types of Force Problems:

1. Equilibrium

$$\sum \vec{F} = 0$$

- happens when object is at rest or in constant velocity
- all forces on object cancel each other out

2. Non-Equilibrium

$$\sum \vec{F} = m\vec{a}$$

- happens when object is accelerating

Free-Body Diagrams (FBD)



Rules:

- Each object gets its own FBD
- All vectors at an angle need to be broken down into x- and y-components
- Needs to include all forces acting on an object